

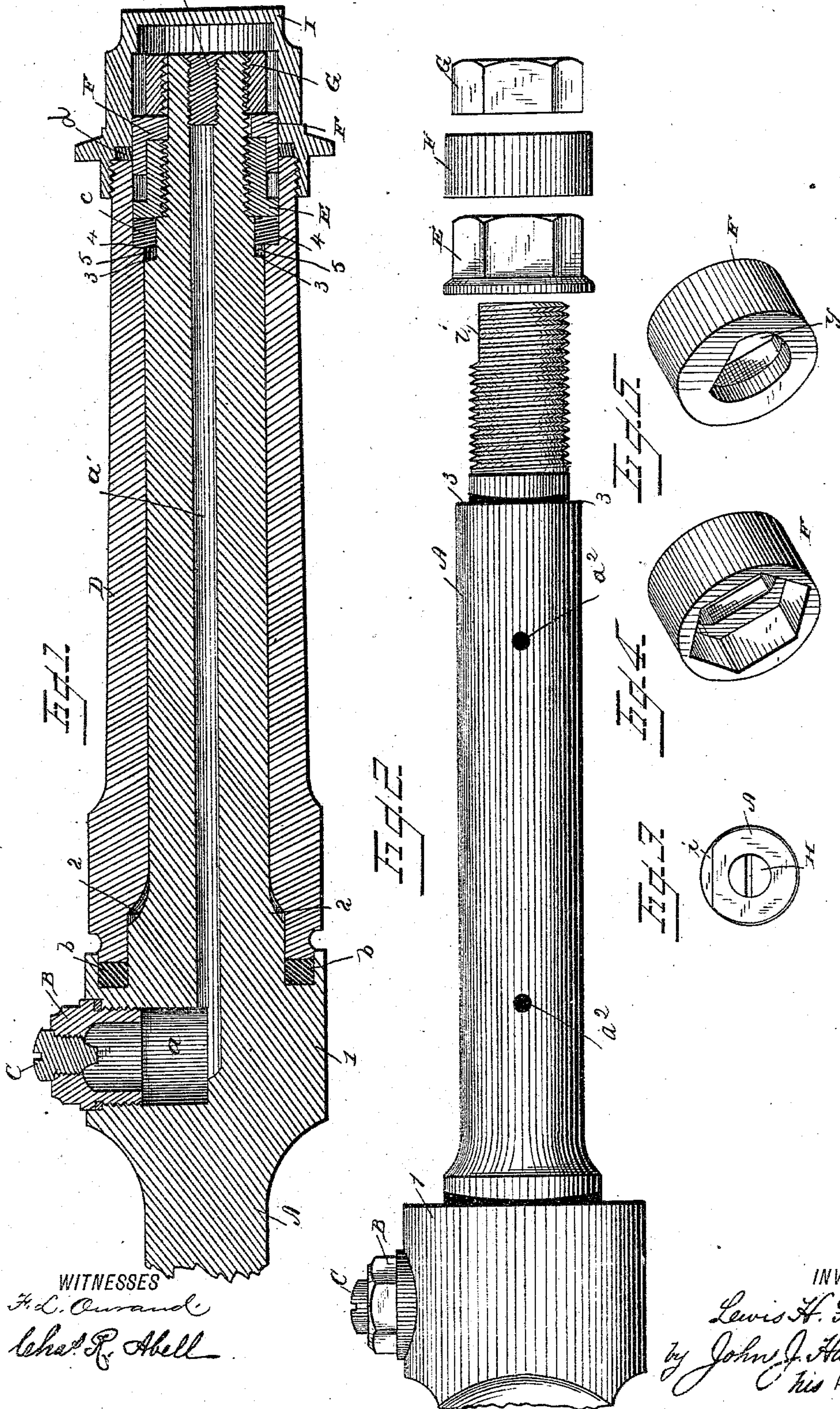
(No Model.)

L. H. FISHER.

SELF OILING AXLE FOR VEHICLES.

No. 296,323.

Patented Apr. 8, 1884.



WITNESSES

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LEWIS H. FISHER, OF WALPOLE, MASSACHUSETTS.

SELF-OILING AXLE FOR VEHICLES.

SPECIFICATION forming part of Letters Patent No. 296,323, dated April 8, 1884.

Application filed August 3, 1883. (No model.)

To all whom it may concern:

Be it known that I, LEWIS H. FISHER, of Walpole, in the county of Norfolk and State of Massachusetts, have invented certain new and useful Improvements in Self-Oiling Axles for Vehicles; and I do hereby declare that the following is a full, clear, and exact description of the invention, which will enable others skilled in the art to which it appertains to make and use the same, reference being had to the accompanying drawings, and to letters of reference marked thereon, which form a part of this specification.

My invention relates to that class in which the journal of the axle is made with an axial passage having lateral outlets communicating with an oil-chamber in the axle-collar—as, for instance, in my Patents Nos. 133,769 and 265,254—and it will be readily understood from the following description.

In the accompanying drawings, Figure 1 is a central longitudinal section of my improved axle. Fig. 2 is an elevation of the axle with the box D removed and the parts E, F, and G detached and in their proper positions for being attached. Fig. 3 is an end view of the arm A. Figs. 4 and 5 are detail views of the cap F.

A is the axle-arm, having a solid collar, 1, and α an oil chamber or reservoir made in this collar.

B is the brass cap over the oil-chamber, and C a screw-plug to close the same, and which is removed when the oil is to be supplied.

It will be observed that, unlike my former constructions, there are no valves or other devices within the chamber α for controlling the flow of oil, for, as will be presently seen, the construction and facilities for adjustments of the interior nuts and packings at the end of the arm A are such that they may always keep the box D up snug to its packing in the collar, and at this and other points prevent any escape of oil, so that the flow of oil from the chamber α into the axial passage α' and lateral passages α'' need not be restrained in any way, and this affords a constant surplus supply of oil for lubricating.

In the collar 1 is an annular recess to receive a packing or leather washer, b , and also to receive the end of the axle-box D, which fits

against such packing. The collar has a shoulder, 2, corresponding with a corresponding one on the axle-arm, for the purpose of providing space for adjusting the box D up to its packing b . The end of arm A is also formed with a shoulder, 3, which, in connection with a shoulder, 4, on the box D, leaves ample space, as at 5, for the adjusting of the interior nut, E, against the leather packing c , and consequently of the box D against its packing b , from time to time, as these packings become worn, so that oil cannot escape. The interior nut, E, is quite distinct from an outer cap on the box, and its function is to adjust the box D, as above stated, to keep the washers tight, and to prevent any leakage of oil; and it will be especially observed that this nut does not, like the nut in my Patent No. 133,769, screw up solid against a metal shoulder, for if it did it would preclude all possibility of adjustment. This nut may be kept to its adjusted position by any appropriate locking device; but I prefer to make it with polygonal head or end, as shown, adapted to receive a polygonal-shaped cap, F, which slides over its end. This cap thus serves as a permanent wrench, and it has also at its outer end a D-shaped opening adapted on the threaded end of the axle-arm, a portion of which is cut away, as shown at i , to give it a D shape to receive this cap. By these means the nut is positively held to its position, for the polygon of the cap prevents the turning of the nut in either direction, and the D-shaped form on the cap and on the arm A prevents the turning of this cap on the arm. If the nut be an octagon and its thread be twelve to the inch, it can be set to just one-eighth ($\frac{1}{8}$) of a turn, so that the adjustment may be made to $\frac{1}{96}$ of an inch.

G is a plain simple nut used to screw upon the end of arm A and up against the cap F, to keep it snugly to place.

H is a screw-plug to close the axial bore α' .

I is an exterior cap, threaded to be screwed upon the box D, and d is a leather packing placed between the end of the box and a shoulder on this cap. This cap is not connected with nor in contact with any of the interior nuts or previously-described devices. It is used partly to prevent any possibility of escape of oil at the end of the axle, partly for a finish,

and also to prevent the interior nuts or cap from coming off; and it contributes to make a complete locking arrangement—that is to say, the inside nut, E, cannot start in either direction when the D-shaped cap F (which I call a “D-wrench”) is on over it to hold its polygonal head; and if the nut G should possibly start it cannot turn more than about one-eighth of an inch before it would come against the inner face of the exterior cap, and as both would be turning in the same direction it could go no farther, and no harm could possibly come to it. The screw-threads on the axle-arms are made “right-hand” upon one side of the carriage and “left-hand” on the other side, so that if the nut G should get started and come against the outer cap-nut, I, the latter will screw it on again rather than off, as both would be revolving in the same direction. As before stated, the top or one side of the screw-thread at the end of arm A is milled off flat, as seen at *i* in Figs. 2 and 3, to fit the D-wrench, and to prevent its turning around. It will be seen that the space 5 between the washer-packing *c* and the shoulder of A permits the interior nut, E, to be screwed up as occasion may require, to take up the wear of the washer *c* and to keep the oil within the box, preventing its escape, and that these adjustments may be made from time to time, as need be, until this space is all taken up, after which the washers are renewed, so that I can dispense with any valves or devices in the oil-chamber *a* for the purpose of regulating or controlling the flow of the oil into the axial and lateral passages. It will also be seen that all the wear comes on the washer *c*, instead of on the inner nut, E. It will be fur-

ther seen that the end cap, I, is not screwed to the axle, as in my above-named patents, but, on the contrary, is screwed on the end of the box, and revolves with it, the packing-ring *d* making a tight joint between this cap and the end of the box.

I claim—

1. In combination with the axle having a valveless oil-chamber in its collar, and an axial and lateral oil-feeding passages, substantially as shown and described, the inner adjustable nut, E, and the washer *c*, applied relatively to the axle and the box D, substantially as and for the purposes described.

2. In combination with the axle A, and with the adjustable nut E and washer *c*, the D-shaped cap F, adapted, as described, to fit upon the polygonal end of the inner nut, E, and also at its outer end to fit the D-shaped end of the axle, the combination being substantially as and for the purposes set forth.

3. In combination with an axle, the inner nut, E, cap F, made as described, the nut G, and the exterior cap, I, applied to the box D, the whole constituting a complete locking arrangement to prevent the nuts coming off.

4. In combination with the axle having an oil-chamber in its collar, and the axial and outlet passages therefrom, box D and washer *b*, adjustable inner nut, E, and washer *c*, the cap F, made as described, the outermost nut, G, and the cap-nut I, applied to the box B, all substantially as and for the purposes set forth.

LEWIS H. FISHER.

Witnesses:

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